

**Molecular recognition method by matching shape of cyclic voltammogram and its device**

Mizusawa, Atsushi. (Daikin Industries, Ltd., Japan). Jpn. Kokai Tokkyo Koho (1998), JP 10054823 Heisei. Patent written in Japanese (Copyright 2000 ACS)

**Abstract**

A mol. recognition method is characterized in that mols. are recognized based on a shape of cyclic voltammogram which is obtained by taking out current in the state of continuously impressing voltage increasing or decreasing at specified ratio against a soln. contg. mols. to be measured, preferably an electrolyte soln. Mols. are recognized by first obtaining a shape of cyclic voltammogram corresponding to each mol. and judging which shape of cyclic voltammogram matches the shape of cyclic voltammogram for the mol. to be measured. The concn. of a mol. is detected based on the area of upward-indentation part of cyclic voltammogram in this mol. recognition method. A mol. recognition device comprises (1) electrodes for taking out current in the state of impressing voltage against a soln. contg. mols. to be measured, (2) a means of voltage sweep for increasing and decreasing above voltage at specified ratio, (3) a means of visualization to obtain cyclic voltammogram based on current taken out and impressed voltage, (4) a means of recognizing mols. based on shapes of cyclic voltammogram, and (5) a means for detecting concn. of mols. based on the upward-indentation part of obtained cyclic voltammogram. This method and device do not require diln. treatment and various reagents, straightforwardly and reliably recognizes mols. and simultaneously detects concn. of a mol., and are suitable for recognizing stereoisomers of sugars represented by the same mol. formula. When sugar is a monosaccharide, the device promotes decompn. Cyclic voltammograms of monosaccharides represented by formula  $C_6H_{12}O_6$  including D-glucose, D-mannose, D-galactose, D-talose, D-allose, and D-fructose were obtained.

**Method for maintaining surface cleanness of noble metal catalyst and fuel cells using the method**

Mizusawa, Atsushi; Itaya, Kingo. (Foundation for Scientific Technology Promotion, Japan). Jpn. Kokai Tokkyo Koho (1999), JP 11214020 Heisei. Patent written in Japanese (Copyright 2000 ACS)

**Abstract**

For maintaining the surface cleanness of noble metals used as catalysts or electrode catalysts in solid/liq. interfacial reaction systems, monosaccharides are added in a soln. in contact with the noble metals and then oxidizing the monosaccharides. In the fuel cells, the monosaccharides are used as anode fuel and O or air is supplied to the cathode side. Since the surface of the noble metals are protected with the oxidized monosaccharides, the catalyst has high activity for a long period.